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EXAMINER

RODRIGUEZ, PAMELA

ART UNIT PAPER NUMBER

3683

DATE MAILED: 08/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/601,971

Applicant(s)

ROPER, RALPH

Examiner

Pam Rodriguez

Art Unit

3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 12-28 is/are rejected.
- 7) ☒ Claim(s) 10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06/23/03
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Species E in the reply filed on June 14, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Accordingly, all claims 1-28 have been examined as reading upon the above elected species.

Claim Rejections - 35 USC § 112

2. Claims 12-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "said first tube" in line 2. There is insufficient antecedent basis for this limitation in the claim.

In the first two lines of the last paragraph of Claim 13, the phrase "said valve means" is indefinite. It is unclear which valve means, either the first valve means or the second valve means, that applicant is referring to here.

Claims 14-24 are rejected merely due to their dependency from Claim 13.

Claim 25 recites the limitation "said valve member" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claims 26 and 27 are rejected merely due to their dependency from Claim 13.

Claim 28 recites the limitation "said first tube" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 8, 13-22, 24, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,647,026 to Siemann et al.

Regarding Claim 1, Siemann et al disclose a gas spring (see Figures 4 and 5) having all the features of the instant invention including: an outer tube 1 having a top and a bottom and being closed off at the bottom (see Figures 4 and 5); a head plate 11 connected to the top of said outer tube 1 (at least via the piston rod) and defining a central opening (i.e., the opening for the piston rod), an inner tube 2 having a top and a bottom and mounted to extend downwardly from said head plate 11 within said outer tube 1 (see Figures 4 and 5); a piston rod 4 extending coaxially from within said inner tube 2, through the central opening in said head plate 11 and outwardly of said head plate 11, said piston rod 4 defining an inner trap (see Figures 4 and 5 and the portion of the inner tube located above piston 5) and being mounted to reciprocate between a retracted, compressed position and an extended, rest position, an inner piston 5 having

Art Unit: 3683

a top and a bottom and being disposed coaxially between the inner tube 2 and said piston rod 4 to reciprocate within the inner trap, elements (i.e., the top and bottom sealing portions of the outer tube) connected with at least one of said inner and outer tubes to define an outer trap (see the lowermost portion of the outer chamber labeled 8 on Figure 1 and thus, its corresponding chamber in Figures 4 and 5), an outer piston 20 having a top and a bottom and being disposed coaxially between said inner tube 2 and said outer tube 1 for vertical reciprocation within the outer trap (see Figures 4 and 5, where piston 20 is more clearly shown in Figure 1); wherein said outer tube 1, inner tube 2, outer piston 20, inner piston 5 and the piston rod define a primary gas chamber 8; wherein said outer tube 1, inner tube 2, outer piston 20 and head plate 11 define an outer oil chamber (see the chamber located just below piston 20 in Figures 1, 4 and 5), wherein said inner tube 2, inner piston 5, piston rod 4 and head plate 11 define an inner oil chamber 7, wherein at least one of said head plate 11 and said inner tube defines a valve passageway 23 extending between the outer oil chamber 8 and the inner oil chamber 7, the valve passageway 23 including a first opening to the inner oil chamber (see Figure 4 and the opening located at the end of head plate 11 nearest element numeral 23) and a second opening to the outer oil chamber 8 (see the opening of passageway 23 nearest element numeral 25), a valve member 24 or 15 disposed proximal the valve passageway 23 and operable to variably control fluid flow between the inner oil chamber 7 and the outer oil chamber 8 (see column 4 lines 38 et al); wherein the inner trap includes said inner piston 5 having an upper position closing off the valve passageway 23 (i.e., when the piston 5 is fully extended, the first opening of

Art Unit: 3683

the passageway described above would be closed); and, seals for preventing undesired fluid flow from the primary gas chamber, inner oil chamber and outer oil chamber (see at least the seals surrounding the piston rod).

Regarding Claim 2, Siemann et al further disclose that the piston rod 4 has a primary diameter portion (see the portion of the piston rod extending out of the outer tube 1) and a reduced diameter portion (see the smaller diameter portion passing through piston 5) and said inner piston 5 is a toroidal-shaped ring that surrounds said piston rod at the reduced diameter portion (see Figures 1, 4, and 5).

Regarding Claim 3, Siemann et al disclose that the inner trap (the portion located just above piston 5 in the figures) is at the reduced diameter portion and defines the limits of movement of said inner piston 5.

Regarding Claim 4, Siemann et al disclose that the outer trap (i.e., the lowermost portion of chamber 8) includes at least one stop member (i.e., the base valve portion of the strut located nearest piston 5) connected with at least one of said inner tube and said outer tube 1, and the outer trap defines the limits of movement of said outer piston 20 (see Figures 1, 4, and 5).

Regarding Claim 5, see the recess portion of passageway 23 which is located at the head portion 11, i.e., which is located in the top of the inner tube 2.

Regarding Claim 6, see Figures 4 and 5.

Regarding Claim 8, see spring 27 in Figure 5 of the reference which is readable as a flow control assembly in that it controls the movement of the valve ring 15 to allow passage of fluid between the inner and outer oil chambers.

Regarding Claim 13, Siemann et al disclose a soft-start, soft-return gas spring (see Figures 1, 4, and 5) having all the features of the instant invention including: an outer tube 1 having a top and a bottom that is closed off; a head plate 11 connected to the top of said outer tube 1 and defining a central opening (i.e., the opening for the piston rod 4); an inner tube 2 mounted to extend downwardly from said head plate; a piston rod 4 extending through the central opening, having an inboard end in said inner tube 2, having an outboard end extending upwardly of said head plate 11, and operating to reciprocate between an extended, rest position and a retracted, compressed position, movement toward the retracted, compressed position being a downstroke and movement toward the extended, rest position being an upstroke; an inner piston 5 disposed between said piston rod 4 and said inner tube 2; an outer piston 20 disposed between said inner tube 2 and said outer tube 1; a primary gas chamber 8 defined by said outer tube, inner tube, outer piston, inner piston and piston rod; an outer oil chamber (see the oil chamber located just below piston 20) defined by said outer tube 1; inner tube; outer piston and head plate; an inner oil chamber 7 defined by said inner tube; inner piston, piston rod and head plate, valve passageway means 23 for providing communication between said inner oil chamber and said outer oil chamber, seals for preventing undesired fluid flow from said primary gas chamber, inner oil chamber 7 and outer oil chamber (see the seals surrounding piston rod 4 and the seals for head portion 11), first valve means (see the portion of inner tube 2 located just above piston 5) which would act to block fluid flow through the valve passageway 23 when said piston rod is near the extended, rest position (at least to the same extent as applicant's), and,

Art Unit: 3683

second valve means 24 or 15 for regulating fluid flow in the valve passageway, said second valve means 24 or 15 permitting substantially free flow from said outer oil chamber 8 to said inner oil chamber 7 and regulating flow from said inner oil chamber to said outer oil chamber to between at least a first and a second flow rate (see column 4 lines 38 et al).

Regarding Claim 14, Siemann et al disclose that the first valve means includes said piston rod defining an inner trap (the portion of the inner tube located just above piston 5) that defines the vertical limits of movement of said inner piston relative to said piston rod.

Regarding Claim 15, Siemann et al disclose that the inner trap includes said inner piston 5 having an upper position closing off the valve passageway 23.

Regarding Claim 16, see Claims 2 and 3 above.

Regarding Claim 17, Siemann et al disclose that the valve passageway means 23 includes at least one of said head plate 11 and said inner tube defining a valve passageway 23 extending between the outer oil chamber 8 and the inner oil chamber 7, the valve passageway including a first opening to the inner oil chamber and a second opening to the outer oil chamber (see Claim 1 above).

Regarding Claim 18, the head plate 11 defines a valve passageway 23 extending between the outer oil chamber and the inner oil chamber, the valve passageway including a first opening (i.e., the opening of passageway 23 nearest element numeral 23) to the inner oil chamber and a second opening (i.e., the opening of passageway 23 nearest head portion 11) to the outer oil chamber (see Claims 1 and 17 above).

Art Unit: 3683

Regarding Claim 19, see Claims 5 and 6 above and the recess at the head portion 11.

Regarding Claim 20, see Claims 14 and 15 above and note that inner piston 5 has an upper position in which it closes off the first opening (i.e., the opening of passage 23 nearest element numeral 23) and correspondingly the recess.

Regarding Claim 21, Siemann et al inherently disclose that the first valve means would regulate fluid flow in the passageway 23 as a function of position of the piston rod.

Regarding Claim 22, Siemann et al inherently disclose that the second valve means 24 or 15 would regulate fluid flow in the passageway means 23 as a function of direction of travel of the piston rod (since movement of the piston rod would control movement of the valve means attached thereto).

Regarding Claim 24, the valve passageway means 23 includes at least one of said head plate 11 and said inner tube defining a valve passageway 23 extending between the outer oil chamber and the inner oil chamber, the valve passageway including a first opening to the inner oil chamber and a second opening to the outer oil chamber (see the descriptions of the first and second openings in Claim 18 above), and wherein said second valve means includes at least one flow control assembly 27 juxtaposed proximal the valve passageway 23 (see Figure 5) and being for regulating the rate of fluid flow from the inner oil chamber to the outer oil chamber (see column 4 lines 54 et al).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7, 9, 12, 23, 25, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,647,026 to Siemann et al.

Regarding Claims 7 and 23, Siemann et al disclose that the valve member 24 or 15 permits fluid flow from the outer oil chamber (the chamber just below piston 20 in Figure 4) to the inner oil chamber 7.

However, Siemann et al does not disclose that these valve members are part of a check valve assembly that includes a check valve permitting fluid flow only from the outer oil chamber to the inner oil chamber.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the valve assembly of Siemann et al to comprise a check valve assembly instead of his ring valve assemblies as a matter of design preference dependent upon the desired type of fluid flow throughout the spring. A check valve assembly would merely be an alternate equivalent means of regulating fluid flow between the outer and inner oil chambers and would not be beyond the realm of one of ordinary skill in the art to employ.

Art Unit: 3683

Regarding Claims 9 and 25, see Claim 7 above and valve ring 15 and the rejection of Claim 8 in paragraph 4.

Regarding Claims 12 and 28, Siemann et al do not specifically disclose a manifold having at least one port sized and configured to connect with the outer tube whereby the manifold is in communication with the primary gas chamber and wherein the bottom of the outer tube is closed by being connected to the manifold.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the gas spring of Siemann et al to be used with a manifold having a port sized and configured to connect with the outer tube and primary gas chamber as an effective means of dampening the vibratory effects of the manifold. The gas spring of Siemann et al already discloses a lower port which is connected with the outer tube and the primary gas chamber. Thus, connecting a manifold to this type of assembly would not be beyond the realm of one of ordinary skill in the art to employ.

Allowable Subject Matter

7. Claims 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 26 and 27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. patent no. 6,068,245 to Roper discloses a gas spring assembly having inner and outer pistons in corresponding inner and outer tubes having a valve means for regulating flow between inner and outer fluid chambers.

Beck et al., Otto, and Spieth et al disclose gas springs having inner and outer tubes with inner and outer piston structures similar to applicant's.

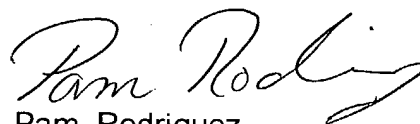
U.S. patent nos. 6,390,457 and 6,622,831 both to Roper disclose gas springs for manifolds having similar valve assemblies to applicant's.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pam Rodriguez whose telephone number is 703-308-3657. The examiner can normally be reached on Mondays 6 am -4 pm and Tuesdays 6 am -12 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder can be reached on 703-308-3421. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3683

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Pam Rodriguez
Primary Examiner
Art Unit 3683

8/2/04

PR
08/02/04